```xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/const_Layout"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textHeader"
        android:layout_width="134dp"
        android:layout_height="43dp"
        android:text="Counter Application"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.159" />

    <Button
```

```xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
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    android:id="@+id/const_Layout"
    android:layout_width="match_parent"
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    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textHeader"
        android:layout_width="134dp"
        android:layout_height="43dp"
        android:text="Counter Application"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.159" />

    <Button
```

activity_main.xml   MainActivity.java

Code   Split   Design

```xml
22        <Button
23            android:id="@+id/buttonStart"
24            android:layout_width="wrap_content"
25            android:layout_height="wrap_content"
26            android:text="Start"
27            app:layout_constraintBottom_toBottomOf="parent"
28            app:layout_constraintEnd_toEndOf="parent"
29            app:layout_constraintHorizontal_bias="0.498"
30            app:layout_constraintStart_toStartOf="parent"
31            app:layout_constraintTop_toTopOf="parent"
32            app:layout_constraintVertical_bias="0.535" />
33
34        <Button
35            android:id="@+id/buttonStop"
36            android:layout_width="wrap_content"
37            android:layout_height="wrap_content"
38            android:text="Stop"
39            app:layout_constraintBottom_toBottomOf="parent"
40            app:layout_constraintEnd_toEndOf="parent"
41            app:layout_constraintHorizontal_bias="0.501"
42            app:layout_constraintStart_toStartOf="parent"
43            app:layout_constraintTop_toTopOf="parent"
```

Syncing...

TODO   6: Problems   Terminal   Database Inspector   Profiler   4: Run   Build   Logcat

Event Log   Layout Inspector

Launch succeeded (moments ago)   1:1   CRLF   UTF-8   4 spaces

```xml
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.501"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.666" />

    <TextView
        android:id="@+id/textViewCount"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Count Value"
        app:layout_constraintBottom_toTopOf="@+id/buttonStart"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textHeader"
        app:layout_constraintVertical_bias="0.758" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

```java
package com.example.counterapp;

import ...

public class MainActivity extends AppCompatActivity {

    Button start, stop;
    TextView homeContent, count;
    Handler handler;
    int countNo = 0;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        start = findViewById(R.id.buttonStart);
        stop = findViewById(R.id.buttonStop);
        homeContent = findViewById(R.id.textHeader);
        count = findViewById(R.id.textViewCount);

        handler = new Handler();

        //onclick listner for start button
```

```java
        //onclick listner for start button

        start.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) { handler.postDelayed(runnable, delayMillis: 0); }
        });


        //onclick listner for stop button
        stop.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Toast.makeText(getApplicationContext(), text: "Clicked on the stop btn", Toast.LENGTH_SHORT).show();
                handler.removeCallbacks(runnable);

            }
        });
    }

    public Runnable runnable = new Runnable() {
        @Override
        public void run() {
            count.setText(""+countNo);
            countNo++;
```

File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help   counterapp - MainActivity.java [counterapp.app]

counterapp ⟩ app ⟩ src ⟩ main ⟩ java ⟩ com ⟩ example ⟩ counterapp ⟩ C MainActivity

activity_main.xml ✕   C MainActivity.java ✕

```java
42          stop.setOnClickListener(new View.OnClickListener() {
43              @Override
44              public void onClick(View view) {
45                  Toast.makeText(getApplicationContext(), text: "Clicked on the stop btn", Toast.LENGTH_SHORT).show();
46                  handler.removeCallbacks(runnable);
47
48              }
49          });
50      }
51
52      public Runnable runnable = new Runnable() {
53          @Override
54          public void run() {
55              count.setText(""+countNo);
56              countNo++;
57              handler.postDelayed( r: this,  delayMillis: 1000);
58          }
59      };
60  }
```

Analyzing...

≡ TODO   ❶ 6: Problems   ▶ Terminal   ≡ Database Inspector   ⟳ Profiler   ▶ 4: Run   ⟋ Build   ≡ Logcat   ◯ Event Log   ⟳ Layout Inspector

🗗 Launch succeeded (moments ago)   1:1   CRLF   UTF-8   4 spaces   😊 🙁
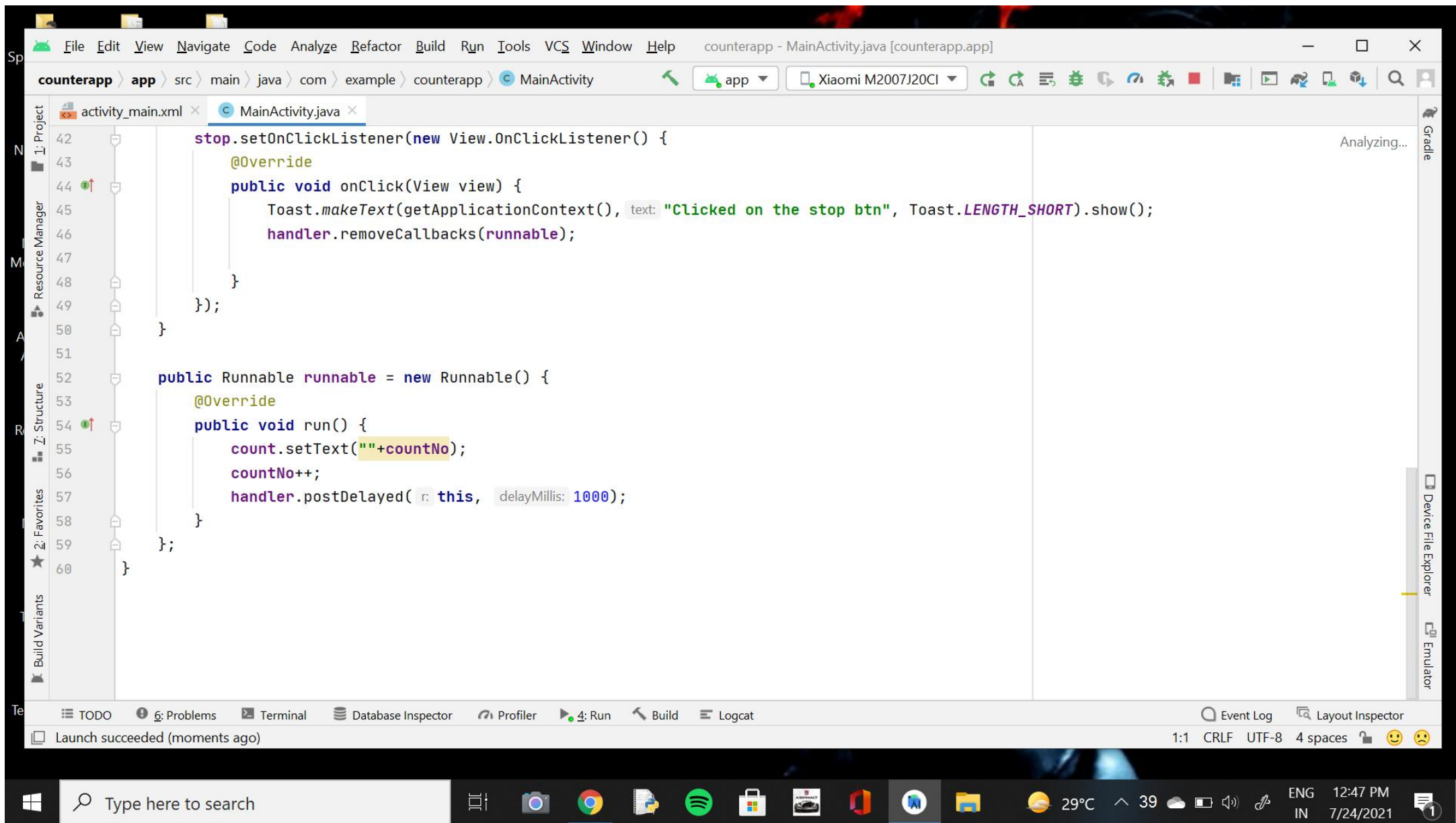
counterapp

Counter Application

3

START

STOP

counterapp

Counter Application

7

START

STOP

counterapp

Counter Application

9

START

STOP

Clicked on the stop btn

Mobile Application Development Lab

Aniket mishra
ICRIT1SO15
24 /07/2021

Program 5   counter Application App

write a program to create an activity with 2 buttons START & STOP on pressing of START button, the activity must start the counter by displaying the numbers from one and counter must keep on counting until STOP is pressed Display counter value.

flow

| Step 1   Design the front-end |

↓

| Step 2   create variables |

↓

| Step 3   Link buttons to its respective functions |

↓

| Step 4   Create toast messages |

↓

| Step 5   Run and Debug |